

CLAIMS

1. Process for the preparation of a thermoplastic elastomer by melt mixing
  - a. a partially vulcanized rubber concentrate
  - b. a thermoplastic polymer and/or additives
  - c. a curing agent and
  - d. optionally oil.
2. Process according to claim 1 characterized in that the melt mixing is carried out in a twin-screw extruder.
3. Process according to claim 1 characterized in that the melt mixing is carried out in a single screw extruder.
4. Process according to any one of the claims 1-3 characterized in that the partially vulcanized rubber concentrate (a) is prepared by melt mixing:
  - e. at least one elastomer
  - f. at least one thermoplastic polymer
  - g. a curing agent and
  - h. optionally oil.
5. Process according to claim 4 characterized in that the partially vulcanized rubber concentrate is prepared by melt mixing
  - e. 30 to 95 parts by weight of the elastomer(s)
  - f. 5 to 50 parts by weight of the thermoplastic polymer(s)
  - g. 0,1-10 parts by weight of the curing agent and
  - h. 0-60 parts by weight of oilwhereby the sum of the parts by weight of the elastomer(s), the thermoplastic polymer(s), curing agent and oil is 100.
6. Process according to any one of claims 4-5 characterized in that the elastomer is EPDM or EPM.
7. Process according to claim 1-6 characterized in that the thermoplastic polymer is chosen from thermoplastic polyolefin homo- and copolymers, reactor TPO, polyamides, polycarbonate, polyesters, polysulfones, polylactones, polyacetals, acrylonitrile-butadiene-styrene (ABS) resins, polyphenylene oxide (PPO), polyphenylene sulfide (PPS), styrene-acrylonitrile (SAN) resins, polyimides, styrene maleic anhydride (SMA) and aromatic polyketones.
8. Process according to claim 7 characterized in that the thermoplastic polymer is a thermoplastic polyolefin homo- and copolymer.

9. Process according to claim 8 characterized in that the thermoplastic polymer is a polypropylene homopolymer.
10. Process according to any one of claims 1-9 characterized in that the elastomer in the partially vulcanized rubber concentrate has a gel content higher than 50%.
11. Process according to any one of claims 1-10 characterized in that the elastomer in the partially vulcanized rubber concentrate has a gel content higher than 70%.
12. Process for the preparation of a thermoplastic elastomer according to claims 1-11 by melt mixing:
- a. 10-90 parts by weight of the partially vulcanized rubber concentrate
  - b. 90-10 parts by weight of a the thermoplastic polymer and/or additives
  - c. 0,1-10 parts by weight of the curing agent
  - d. 0-30 parts by weight of oil
- whereby the sum of the parts by weight of the partially vulcanized rubber concentrate, the thermoplastic polymer and/or additives, the oil and the curing agent is 100.
13. Process according to any one of claims 1-12 characterized in that the curing agent is chosen from phenol resins, siloxanes or peroxides.